We Claim:

1. A series transmission line transformer comprising:

input and output connections having a desired impedance relationship;

a first set of at least two coiled transmission lines electrically connected in parallel at one and in series at the other end;

at least a second set of at least two coiled transmission lines connected in parallel on one end and in series on the other end, said first set of lines cascaded with the other sets, each impedance of a set matched to the next, said input and output connected to said first and last set of said cascade.

2. The transformer of claim 1 wherein each set has an impedance ration substantially equal to m^2, where m is the number of transmission lines comprising that set.

3. The transformer of claim 2 wherein the total impedance ratio is the product of each set impedance ratio.

4. The transformer of claim 1 wherein said all sets are coiled about a common core of magnetic material.

5. The transformer of claim 1 having a desired voltage ratio $R=V_{hi}/V_{lo}$.

6. The transformer of claim 1 having a uniform voltage per turn V_t, and $N = V_{lo}/V_t$ is an integer.

7. The transformer of claim 1 wherein said lines of said sets are coiled a total number of turns T substantially equal to 3N(R-1)/2 where R is the voltage ratio of claim 3, and N is an integer of claim 4.